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09/761,778	01/18/2001	Yoshinobu Kubota	1460.1016	5961

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EXAMINER

KAO, CHIH CHENG G

ART UNIT PAPER NUMBER

2882

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/761,778

Applicant(s)

KUBOTA ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Objections*

1. Claim 6 is objected to informalities, which appear to be minor draft errors created lack of antecedent basis problems. Claim 6 recites the limitation "said first optical waveguide" in line 4. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, this claim will be interpreted as - a first optical waveguide- - rather than "said first optical waveguide". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: a second electrode. Claim 6, line 7, recites the limitation "said electrode", which has antecedent basis to "an electrode" in line 3 of the claim. However, it is indefinite as to how a single electrode can use two signals simultaneously: a clock signal voltage and a modulated signal voltage. Figure 2(a) shows two separate electrodes, one for the clock signal voltage (Fig. 2(a), #33-2) and one for the modulated signal voltage (Fig. 2(a), #33-3). For purposes of examination, the "said electrode" in line 7, will be interpreted as - a second electrode- -.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al. (US Patent 5117470).

4. With regards to claim 1, Inoue et al. discloses an optical circuit (Title) comprising: a first optical element (Fig. 32, #70a) on a substrate (Fig. 32, #9) having an optical coupling part (Fig. 32, #65a), a second optical element (Fig. 32, #70c) on the substrate guiding light from the first optical element, and an optical waveguide on the substrate guiding light emitted from the optical coupling part (Fig. #32, #62),

5. With regards to claim 2, Inoue et al. further discloses at least one optical element as a Mach-Zehnder type optical element (Fig. 32, #70a).

6. With regards to claim 3, Inoue et al. further discloses at least one optical element as a Mach-Zehnder interferometer type optical modulator (Fig. 32, #70a).

7. With regards to claim 4, Inoue et al. further discloses at least two optical elements are connected in tandem (Fig. 32, #70a and 70c).

8. With regards to claim 8, Inoue et al. further discloses light from the first optical element is formed in a Mach-Zehnder interferometer structure to attenuate light intensity and vary an amount of attenuation (Fig. 32, #70c).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied to claim 1 above, and further in view of Asano et al. (US Patent 5621839).

Inoue et al. discloses a device as recited above.

However, Inoue et al. does not disclose a ferroelectric substrate.

Asano et al. teaches a ferroelectric substrate (Title).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have the ferroelectric substrate of Asano et al. with the device of Inoue et al., since one would be motivated to build a device in which a light dividing ratio and a light insertion loss are not varied as shown by Asano et al. (col. 2, lines 9-16).

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10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied to claim 1 above, and further in view of Ooi et al. (US Patent 5917628).

For purposes of being concise, Inoue et al. discloses a device as recited above.

However, Inoue et al. does not disclose a clock signal voltage to an electrode for varying a refractive index of a first optical waveguide and a signal voltage modulated to a second electrode.

Ooi et al. teaches a clock signal voltage to an electrode (Fig. 1, #62 and 70) for varying a refractive index of a first optical waveguide (inherent) and a signal voltage modulated to a second electrode (Fig. 1, #63 and 70).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have the clock and modulated signals of Ooi et al. with the device of Inoue et al., since one would be motivated to build this configuration to make a conventional optical time-division multiplexer (col. 5, lines 35-68) as implied from Ooi et al.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied to claim 1 above, and further in view of Hosoi (US Patent 5475771).

Inoue et al. discloses a device as recited above.

However, Inoue et al. does not disclose a lithium niobate substrate.

Hosoi teaches a lithium niobate substrate (col. 1, lines 11-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have the substrate of Hosoi with the device of Inoue et al., since one

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would be motivated to create a large electromechanical coupling coefficient when building a device as shown by Hosoi (col. 1, lines 11-15).

12. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of Sano et al. (JP 01-097905).

For purposes of being concise, Inoue et al. discloses a device as recited above.

However, Inoue et al. does not disclose a pair of second optical waveguide formed on both sides of the first optical waveguide to guide unnecessary or subsidiary light.

Sano et al. teaches a pair of second optical waveguides formed on both sides of the first optical waveguide to guide unnecessary or subsidiary light (Abstract, and Fig. 1, #4 and 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have the second optical waveguides of Sano et al. with the device of Inoue et al., since one would be motivated to use those waveguides to create a large attenuation quantity in the stop band to suppress unnecessary light as implied from Sano et al. (Abstract).

#### ***Response to Arguments***

13. The objections to the claims have been withdrawn in light of the Amendment made of record on 6/26/03.

14. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (703) 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk  
July 21, 2003



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